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10/565,150

01/19/2006

Pieter Willem Jedeloo

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NXP, B.V.

NXP INTELLECTUAL PROPERTY & LICENSING

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1109 MCKAY DRIVE

SAN JOSE, CA 95131

EXAMINER

HSIEH, PING Y

ART UNIT

PAPER NUMBER

2618

NOTIFICATION DATE

DELIVERY MODE

04/29/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/565,150 | Applicant(s) JEDELOO, PIETER WILLEM | |
| | Examiner PING Y. HSIEH | Art Unit 2618 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 14 recites the limitation "second inductor" in line 4 and "common node of the second inductor and the third capacitor" in lines 5-6. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 2, 5-7, 9-13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodim (U.S. PATENT NO. 7,005,940) in view of Fukamachi et al. (U.S. PG-PUB NO. 2004/0266378).

-Regarding claims 1, 11 and 12, Kodim discloses antenna switch which is arranged to alternately operate in a receive mode and a transmit mode (**antenna switch 10 as disclosed in fig. 3a**), the antenna switch comprising an adaptive filter (**high power stage 12 and multiband transformation stage 14 as disclosed in fig. 3a**) for coupling a signal processing means to an antenna during the receive mode (**an input/output port configured as antenna port 22 are each coupled to a node 24 as disclosed in fig. 3a and further disclosed in col. 7 lines 9-10**) and for electrically insulating the signal processing means from the antenna during the transmit mode (**in the high-band transmit mode, the short circuit at node 52 is transformed by the first transmission line T1 to an open circuit at the first signal port 20 of the multiband transformation stage 14 and consequently, the low-power stage 16 remains isolated from the high power stage 12 and the antenna port 22 as disclosed in fig. 3a and col. 8 lines 27-44**), wherein the adaptive filter has a first passband during the transmit mode (**900 MHz band or 1800 MHz band and 1900 MHz band as disclosed in fig. 3a and further disclosed in col. 7 lines 32-58**) and a second passband during the receive mode (**in the receive GSM 900/GSM 1800/GSM 1900 mode as disclosed in fig. 6 and col. 8 lines 20-25, both D1 and D2 are off, and therefore the passband for transmission lines T1 and T2 is**

wideband). However, Kodim does not specifically disclose the adaptive filter comprises a circuit arrangement of at least one capacitor and at least one inductor, wherein: a group of circuit components of the circuit arrangement implements a transmit filter stage with a band-pass passband; and a subset of the group of circuit components of the circuit arrangement implements a receive filter stage.

Fukamachi et al. disclose the adaptive filter **(fig. 9)** comprises a circuit arrangement of at least one capacitor and at least one inductor **(LPF1, LPF2 as disclosed in fig. 10)**, wherein: a group of circuit components of the circuit arrangement implements a transmit filter stage with a band-pass passband **(DCS Tx frequency: 1710 ~ 1785 MHz as disclosed in paragraph 98)**; and a subset of the group of circuit components of the circuit arrangement implements a receive filter stage **(Dip as disclosed in fig. 10)**.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the invention of Kodim to include the features as disclosed by Fukamachi et al. One is motivated as such in order to suppress n-th harmonic strain included in transmission signals sent from the power amplifier in the EGSM or DCS system as suggested in Fukamachi et al., paragraph 99 and prevent the breakdown of high frequency parts by electrostatic surge.

-Regarding claim 2, the combination further discloses the signal processing means are electrically insulated from the antenna by controllably configuring the adaptive filter such that the adaptive filter is coupled between the

antenna and ground during the transmit mode (**Kodim, as disclosed in fig. 3a and col. 8 lines 27-44**).

-Regarding claim 5, the combination further discloses the second passband is a highpass passband (**Fukamachi et al., high pass band from Dip as disclosed in fig. 9**).

-Regarding claim 6, the combination further discloses a switch device through which the signal processing means is coupled to the adaptive filter (**Kodim, low power stage 16 as disclosed in fig. 3a and further disclosed col. 8 lines 3-6**).

-Regarding claim 7, the combination further discloses the switch device is a low-power switch device (**Kodim, see col. 6 lines 1-17**).

-Regarding claim 9, the combination further discloses electrostatic protection (**Fukamachi et al., as shown in figs. 1-3 and further disclosed in paragraphs 81-92**).

-Regarding claim 10, the combination further discloses switching devices (**Kodim, D1 and D2**) to change the geometry of the adaptive filter (**Kodim, multiband transformation stage 14 as disclosed in fig. 3a**).

-Regarding claim 13, the combination further discloses the group of circuit components of the transmit filter stage comprises a pair of capacitors coupled in series between the antenna and switches for the signal processing means (**Fukamachi et al., C2 and C4, fig. 10**); a first inductor coupled between ground and a common node of the pair of capacitors (**Fukamachi et al., L4, fig. 10**); and

a series arrangement of a second inductor (**Fukamachi et al., L2, fig. 10**) and a third capacitor coupled in parallel with the pair of capacitors (**Fukamachi et al., C1, fig. 10**).

-Regarding claim 15, the combination further discloses the subset of the group of circuit components of the receive filter stage comprises a pair of capacitors coupled in series between the antenna and the signal processing means (**Fukamachi et al., C2, C4, fig. 10**); and an inductor coupled between ground and a common node of the pair of capacitors (**Fukamachi et al., L4, fig. 10**).

-Regarding claim 16, the combination further discloses the adaptive filter further comprises a receiver switch coupled between the signal processing means and the subset of the group of circuit components of the receive filter stage, so that the subset of the group of circuit components of the receive filter stage is between the receiver switch and the antenna (**Fukamachi et al., SW1 or SW2, fig. 10**).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kodim (U.S. PATENT NO. 7,005,940) in view of Fukamachi et al. (U.S. PG-PUB NO. 2004/0266378) and further in view of Koskinen (U.S. PG-PUB NO. 2002/0086644).

-Regarding claim 3, the combination of Kodim and Fukamachi et al. teaches all the limitations as claimed in claims 1 and 2. However, the combination does not specifically disclose the adaptive filter is a high-impedance

filter during the transmit mode and a low-impedance filter during the receive mode.

Koskinen discloses the adaptive filter is a high-impedance filter during the transmit mode and a low-impedance filter during the receive mode in paragraphs 46 and 47.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the combination of Kodim and Fukamachi et al. to include the features as disclosed by Koskinen. One is motivated as such in order to provide a less expensive implementation having a lower current consumption.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kodim (U.S. PATENT NO. 7,005,940) in view of Fukamachi et al. (U.S. PG-PUB NO. 2004/0266378) and further in view of Phillips et al. (U.S. PATENT NO. 6,765,536).

-Regarding claim 8, the combination of Kodim and Fukamachi et al. teaches all the limitations as claimed in claims 1, 6 and 7. However, the combination does not specifically disclose the low-power switch device is a low-power pHEMT.

Phillips et al. disclose the switching device can be pHEMT as disclosed in col. 4 lines 33-50.

Therefore, it would have obvious to one of ordinary skills in the art at the time of invention to modify the low-power switch to be a pHEMT. One is motivated as such in order to provide low noise and high gain.

Response to Arguments

Applicant's arguments with respect to claims 1-3 and 5-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PING Y. HSIEH whose telephone number is (571)270-3011. The examiner can normally be reached on Monday~Thursday 8am ~ 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. Y. H./
Examiner, Art Unit 2618

/Lana N. Le/
Primary Examiner, Art Unit 2614